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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,567	03/08/2002	Wolfgang Hahn	951/50488	7047

23911 7590 04/23/2003

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EXAMINER

FISCHMANN, BRYAN R

ART UNIT	PAPER NUMBER
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3618

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SK

Office Action SummaryApplication No.
10/070,567Applicant(s)
WOLFGANGExaminer
Bryan FischmannArt Unit
3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 8, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-31 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15, 18, 20, 24-27, 30, and 31 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 19, 21-23, 28, and 29 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Mar 8, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

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Acknowledgments

- 1 The Substitute Specification (paper 5) and Preliminary Amendment (paper 6) filed 3-08-2002 have been entered.

Specification

2. The abstract of the disclosure is objected to because of the following:
 - A) The abstract uses legal terms such as “said” (see MPEP 608.01(b)).
3. The disclosure is objected to because of the following:
 - A) The Applicant has not referred to the foreign priority document in the first sentence of the specification as required by Section 202.01 of the MPEP.
 - B) The addition of paragraph 0005 in the Substitute Specification is objected to as containing new matter, as the original specification, drawings, or claims did not contain the information now in paragraph 0005 of the Substitute Specification. Although it is recognized that this paragraph is limited to discussion of prior art, it is noted that discussion of prior art in this paragraph was not present in the original disclosure and is therefore technically considered new matter.

Due to this, it is requested Applicant delete paragraph 0005, or provide justification as to why paragraph 0005 does not constitute new matter.

- C) The following recited phrases are unclear, awkwardly worded, and/or grammatically incorrect:

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1) The recitation of “extinctions” in paragraphs 0020-0022 is considered awkward and somewhat unclear.

2) The recitation of “differential contrast evaluation” is objected to as being unclear and inadequately explained.

3) It is requested Applicant define the meaning of the abbreviation of “LIDAR” in paragraph 0022.

D) The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The limitations of claims 20 and 22 do not appear to be supported by the substitute specification.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the additional CCD camera recited in claims 13 and 27 and the memory device stored in a visual range module as recited in claims 20 and 22 must be shown or the feature canceled from the claim. No new matter should be entered.

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Claim Objections

5. Claims 19, 21, 23 and 29 are objected to because of the following:

A) Claim 19 recites "...said analyzing device includes means for performing differential contrast evaluation".

As already noted in this Office Action, the term "differential contrast evaluation" does not appear to have been adequately explained to be claimed. In other words, the Applicant simply recites this term with no explanation as to what kind of data processing is associated with this term.

Note that this objection will be withdrawn if Applicant can supply evidence that the above term is known to one of ordinary skill in the art at the time the invention was made. Note, however, that evidence provided that differential contrast evaluation is known to one of ordinary skill in the art at the time the invention was made may be used as prior art against the claims.

See claims 21 and 23 for an identical recitation.

B) Claim 29 is dependant upon claim 28, but appears to be identical to claim 28.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 10-15, 18, 20, 24-27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-255019, in view of Evans Jr., et al, US Patent 5,051,906 and Internet Web Site www.canon-europa.com.

Japanese Patent 10-255019 teaches a motor vehicle sensor system for detecting an outer environment, the sensor system comprising:

at least two camera systems (CCD and infrared - see English Language Abstract) operable to image the outer environment (Figure 5); and

wherein each camera system operates in a different spectral region (infrared and non-infrared).

Japanese Patent 10-255019 fails to teach that each camera is adjusted to a different focal distance.

However, the above recitation implies that all prior art motor vehicle sensor systems utilizing two or more cameras operating in a different spectral region have identical focal distances. One of ordinary skill in the art would therefore realize that the focal distance is based on several parameters and that different cameras operating in different spectral regions will not always, or even generally utilize identical focal distances, as considerations such as the type of spectral information, mounting location, magnification, etc. for each camera type will likely be different.

For example, Evans teaches a motor vehicle sensing system utilizing a CCD camera with a focal distance of 8.5mm (lines 40 and 41 of column 6). A focal distance of 8.5 mm has been

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found advantageous by one skilled in the art for guidance of a vehicle by a CCD camera as being a suitable focal distance for object recognition. Note also that Evans describes this CCD camera as being "typical", as opposed to having a focal distance "custom designed" for this application, but rather corresponding to a focal distance commonly available in CCD cameras.

Also, Internet Web Site www.canon-europa.com teaches that a camera focal length which utilizes a lens, or distance may be calculated on the basis of an object distance and object dimension. Also, the Examiner takes Official Notice that an infrared camera utilizes a lens. This may be seen on any infrared camera. A lens is necessary to magnify an object and provide a focused image onto a recording medium, such as infrared film. Note that Japanese Patent 10-255019 teaches that the infrared camera is used to discern objects, such as a preceding vehicle. Assuming a preceding vehicle is 50 meters away and 60 centimeters wide, the focal distance is calculated Internet Web Site www.canon-europa.com to be approximately 733 mm. This focal distance will provide a focused image to a recording medium for an object 50 meters away and 60 centimeters wide, such as would generally correspond to a preceding vehicle.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize different focal distances for the CCD camera and infrared camera of Japanese Patent 10-255019, as taught by Evans and Internet Web Site www.canon-europa.com.

Regarding the "date" of Internet Web Site www.canon-europa.com, note that the Examiner has included a printout from www.archive.org in the cited prior art indicating that this

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web site was first created in 5/1998. Also note that the calculation performed on this web site is based on scientific principles of lenses and magnification known for at least many decades, if not well over a century. See also comments regarding claims 15 and 16 on the relationship of focal distance and distance of an object to a lens.

Regarding claims 13 and 27, note that it is considered within the skill level of one of ordinary skill in the art to duplicate parts. See Section 2144.04 of the MPEP. Duplicating, or adding an additional CCD camera is advantageous in that a second camera may be placed at a different location to expand the “field of vision” beyond that of the first CCD camera. A second CCD camera is also advantageous in that it may be used as a “backup” in the event of a casualty to the first CCD camera.

Regarding claims 14 and 15, note that the CCD camera has a focal distance less than that of the infrared camera. Note that from the theory of lenses that focal point and the distance from a subject to a lens are directly proportional, such that a smaller focal distance is related to a smaller distance from the “subject”, or object to the lens. To further expand, the Examiner takes Official Notice that it is known from the theory of lenses and magnification that the distance from a subject to a lens (p), the distance from an image to a lens (q) and the focal point (f) are related by the formula $((1/p) + (1/q) = (1/f))$.

Regarding claims 18 and 30, see Figure 1 of Japanese Patent 10-255019.

Regarding claim 20, see reference numbers 14, 16 and 18 of Japanese Patent 10-255019.

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Regarding the recitation of “vehicle body” in claim 24, note the recitation of “self vehicle” in the English Language Abstract of Japanese Patent 10-255019. Regarding the recitation of “at least two camera systems arranged in a forward portion of the vehicle body for imaging areas in a traveling direction of the motor vehicle”, see Figures 3 and 5 of Japanese Patent 10-255019 and the recitation of “CCD camera acquires a visible image in front of a vehicle and the image is binarized by an image capture board...an infrared image that is acquired by an infrared camera...is supplied to the board...A threshold for binarization of the infrared image is decided on the temperature information of parts...” in the English Language Abstract of Japanese Patent 10-255019. From this, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the infrared camera was viewing objects in front of the vehicle, as is the CCD camera, since both the CCD and infrared images are sent to the same board in order to recognize vehicles at night.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-255019, Evans Jr., et al, US Patent 5,051,906 and Internet Web Site www.canon-europa.com, as applied to claim 24 and further in view of Japanese Patent 4-164281.

The combination motor vehicle of Japanese Patent 10-255019 fails to teach a display to provide environmental information to a driver.

However, Japanese Patent 4-164281 teaches a motor vehicle including the use of a CCD camera to provide an image on a screen (see reference number 2a and the English Language Abstract). A display providing environmental information to a driver is advantageous in that the

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driver may see objects in front of him on the display that are not visible to him, especially at night or in bad weather.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a display in the combination motor vehicle of Japanese Patent 4-164281, as taught by Japanese Patent 4-164281.

Regarding the claim 31 recitation "...display...arranged within a driver's viewing range...", it is noted that Japanese Patent 4-164281 does not explicitly state that the display is within the driver's viewing range. However, it would have been obvious to one of ordinary skill in the art to locate the display within the driver's range, as otherwise, the display would be of no use to the driver.

Allowable Subject Matter

9. Claims 16, 17, 19, 21-23, 28 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and to overcome any applicable claim objections.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- A) Hillis - teaches use of two cameras to detect object
- B) Cannon - teaches use of multiple cameras to detect object
- C) Szu - teaches use of two cameras to detect object
- D) Geng - teaches use of multiple cameras to detect object
- E) Malione - teaches use of multiple cameras to detect object
- F) Mendlovic, et al - teaches use of cameras with different focal distances to detect object
- G) Yasui, et al - teaches use of two cameras on a vehicle (Figure 11)
- H) Japanese Patent 4-162282 - teaches use of a CCD camera on a vehicle
- I) European Patent 736414 - teaches use of two cameras on a vehicle
- J) Japanese Patent 9-96528 - teaches use of a CCD camera on a vehicle
- K) Japanese Patent 9-259390 - teaches use of a CCD camera on a vehicle
- L) Printout from Internet Web Site www.sol.sci.uop.edu - teaches "thin lens equation"
- M) Printout from Internet Web Site www.cgnetwork.com - teaches CCD focal length calculator
- N) Printout from Internet Web Site www.archive.org - teaches creation date of web site www.canon-europa.com

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Bryan Fischmann whose telephone number is (703) 306-5955. The examiner can normally be reached on Monday through Friday from 7:30 to 4:00.

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If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson, can be reached on (703) 308-0885. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

B. Fischmann 4-20-3
BRYAN FISCHMANN
PATENT EXAMINER